
Nos. 20-1503, 23-1214 (consolidated)

UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUITSIERRA CLUB and CENTER FOR BIOLOGICAL DIVERSITY,
Petitioners,

v.

DEPARTMENT OF ENERGY,
Respondent,

and

ALASKA LNG PROJECT, LLC, and
ALASKA GASLINE DEVELOPMENT CORPORATION,
Intervenors.

On Petition for Review of Department of Energy
Office of Fossil Energy Order No. 3643-A (Aug. 20, 2020), and
Office of Fossil Energy and Carbon Management
Orders No. 3643-C (Apr. 13, 2023) and No. 3643-D (June 14, 2023)
DOE/FECM Docket No. 14-96-LNG

[PROOF] BRIEF FOR RESPONDENT DEPARTMENT OF ENERGY

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES**A. Parties and Amici**

All parties, intervenors, and amici in this court are listed in the Petitioners' Opening Brief (Dec. 15, 2023).

B. Rulings Under Review

References to the orders on review also appear in the Petitioners' Opening Brief.

C. Related Cases

There are no related cases within the meaning of Circuit Rule 28(a)(1)(C).

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GLOSSARY

AR	Administrative Record
Bcf	billion cubic feet
CO ₂	carbon dioxide
CEQ	Council for Environmental Quality
DOE	Department of Energy
EIS	environmental impact statement
FERC	Federal Energy Regulatory Commission
GHG	greenhouse gas
LNG	liquefied natural gas
NEPA	National Environmental Policy Act
NERA	National Economic Research Associates
SEIS	Supplemental Environmental Impact Statement, Alaska LNG Project (DOE, January 2023)

INTRODUCTION

Petitioners Sierra Club and Center for Biological Diversity challenge orders by the Department of Energy (“DOE”) that authorize the export of liquefied natural gas (“LNG”) from the Alaska LNG Project, a proposed project to commercialize natural gas from Alaska’s North Slope. The challenged orders allow exports to countries with which trade is not prohibited by U.S. law or policy but that lack a free trade agreement with the United States requiring national treatment for trade in natural gas. Under Section 3(a) of the Natural Gas Act, DOE “shall” allow exports to such countries unless DOE finds that the proposed exports “will not be consistent with the public interest.” 15 U.S.C. § 717b(a).

The Federal Energy Regulatory Commission (“FERC”) granted siting authority—under the same statutory standard—for Project facilities (a North Slope treatment plant, an approximately 800-mile pipeline to transport natural gas to the Kenai Peninsula, a liquefaction plant, and an export terminal). This Court has denied a petition for review of FERC’s facility-siting order. *Ctr. for Biological Diversity v. FERC*, 67 F.4th 1176 (D.C. Cir. 2023) (“*Alaska LNG I*”).

DOE first granted export authority in August 2020. In April 2021, DOE granted rehearing to conduct additional environmental studies, including: (1) a lifecycle analysis of greenhouse gas (“GHG”) emissions from production through consumption of the LNG from the Project, and (2) an analysis of “upstream”

impacts on the North Slope due to enhanced natural gas production. DOE produced those studies in a supplemental environmental impact statement (“SEIS”) under the National Environmental Policy Act (“NEPA”). In April 2023, DOE issued an order reaffirming its grant of export authority, based on a determination that the Project’s potential environmental impacts do not outweigh potential Project benefits and are insufficient to show that exports are not in the public interest.

Petitioners challenge DOE’s public interest finding under the Natural Gas Act, asserting that DOE: (1) overstated the uncertainties of climate impacts, (2) failed to give equal consideration to the uncertainties of Project benefits, and (3) disregarded potentially significant non-climate harms from enhanced North Slope gas production. Petitioners make similar arguments under NEPA.

These objections are misguided and do not overcome the deference due the expert agency’s scientific and technical judgments. The Natural Gas Act gives DOE broad discretion in assessing the public interest and directs DOE to deny an export application only if DOE makes an affirmative finding that proposed exports will not be consistent with the public interest. DOE properly exercised its discretion, considering all pertinent issues, and providing a reasoned explanation for its decision. The petition for review should be denied.

STATEMENT OF JURISDICTION

Petitioners seek review of three DOE orders that grant authority to export natural gas under the Natural Gas Act, 15 U.S.C. § 717b(a):

- DOE/FE Order No. 3643-A (Aug. 20, 2020), AR 107,
- DOE/FECM Order No. 3643-C (Apr. 13, 2023), AR 162, and
- DOE/FECM Order No. 3643-D (June 14, 2023), AR 175.

On September 21, 2020, Sierra Club timely sought rehearing of the initial order. AR 109; *see also* 15 U.S.C. § 717r(a). DOE did not act on that application within thirty days, and it was deemed denied. *See* 15 U.S.C. § 717r(a). On December 16, 2020, Sierra Club timely filed a petition for review. JA __; *see also* 15 U.S.C. § 717r(b). DOE then granted administrative rehearing, AR 126, and this Court held the petition for review in abeyance pending completion of the rehearing proceeding. On April 13, 2023, DOE issued an order reaffirming and amending its initial order. AR 162. Petitioners timely sought rehearing on May 14, 2023, AR 171, which DOE denied on June 14, 2023, AR 175. On August 11, 2023, Petitioners timely filed a petition for review (No. 23-1214) from the latest orders, JA __, which was consolidated with Sierra Club's initial petition (No. 20-1503). This Court has jurisdiction under 15 U.S.C. § 717r(b).

STATEMENT OF THE ISSUES

1. Whether, in determining under the Natural Gas Act, 15 U.S.C. § 717b(a), that proposed natural gas exports from the Alaska LNG Project will not be inconsistent with the public interest, DOE reasonably considered global climate impacts and impacts on the North Slope from enhanced gas production, and fairly weighed potential Project harms and benefits.

2. Whether DOE took a hard look at the potential impacts of the authorized natural gas exports, consistent with NEPA regulations for evaluating the “no action” scenario and for evaluating impacts in the face of incomplete or unavailable information.

PERTINENT STATUTES AND REGULATIONS

All pertinent statutes and regulations are set forth in the Addendum to Petitioners’ Brief.

STATEMENT OF THE CASE

A. Natural Gas Act

Congress enacted the Natural Gas Act in 1938, authorizing the Federal Power Commission to regulate the interstate sale and transportation of natural gas, and natural-gas imports and exports, with the “principal aim of ‘encourag[ing] the orderly development of plentiful supplies of . . . natural gas at reasonable prices,’” *City of Clarksville, Tenn. v. FERC*, 888 F.3d 477, 479 (D.C. Cir. 2018) (quoting

NAACP v. Fed. Power Comm'n, 425 U.S. 662, 669-70 (1976)), and to “protect consumers against exploitation at the hands of natural gas companies,” *id.* (quoting *Fed. Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591, 610 (1944)) (internal quotations omitted). Congress also empowered the Commission to consider other concerns, including “conservation, environmental, and antitrust” issues. *Id.*; see also *W. Va. Pub. Serv. Comm'n v. U.S. Dep't of Energy*, 681 F.2d 847, 865 (D.C. Cir. 1982) (noting that a “broad range of factors” must be considered).

In 1977, Congress dissolved the Federal Power Commission and transferred its authorities to DOE and FERC. See *La. Ass'n of Indep. Producers v. FERC*, 958 F.2d 1101, 1120 (D.C. Cir. 1992). DOE now administers Section 3(a) of the Natural Gas Act, 15 U.S.C. § 717b(a), which governs imports and exports, while FERC administers Section 3(e), 15 U.S.C. § 717b(e), which governs terminal siting. *La. Ass'n*, 958 F.2d at 1120.

Under Section 3(a), DOE approval is required for any import or export of natural gas. 15 U.S.C. § 717b(a). But Section 3(a) specifies that DOE “shall” grant such authority “unless, after opportunity for hearing, [DOE] finds that the proposed exportation or importation will not be consistent with the public interest.” *Id.* And Section 3(c) specifies that any importation of natural gas, or any exportation as to nations “with which there is in effect a free trade agreement

requiring national treatment for trade in natural gas,”² “shall be deemed . . . consistent with the public interest” and “applications for such importation or exportation shall be granted without modification or delay.” *Id.* § 717b(c). Thus, as to free-trade-agreement nations, export authorization is mandated, *id.*, and as to other nations, there is a “general presumption favoring . . . authorization,” which means that “there must be an affirmative showing of inconsistency with the public interest” to support the denial of an application. *Sierra Club v. U.S. Dept. of Energy*, 867 F.3d 189, 203 (D.C. Cir. 2017) (cleaned up).

In 1984, DOE published guidelines to govern natural gas imports. 49 Fed. Reg. 6684 (Feb. 22, 1984); *see also La. Ass’n*, 958 F.2d at 1120. Reflecting the terms of the Natural Gas Act, the guidelines presume that open markets will further the public interest. *See* 49 Fed. Reg. at 6685; *see also New England Fuel Institute v. Economic Regulatory Administration*, 875 F.2d 882, 883-84 (D.C. Cir. 1989). DOE has adopted a substantially similar approach for natural gas exports. AR 175_at_50. When reviewing applications for export authorization, DOE weighs multiple factors, including “economic impacts, security of natural gas supply, and environmental impacts.” *See* 88 Fed. Reg. 25,272, 25,274 (Apr. 26, 2023).

² These nations are Australia, Bahrain, Canada, Chile, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Singapore, and South Korea. AR 162_at_1 n.5.

B. Alaska LNG Project

The Alaska LNG Project is a proposed project to commercialize natural gas resources that are now “stranded” on Alaska’s North Slope, a designated oil producing region on the coastal plain north of the Brooks Range adjacent to the Arctic Ocean. AR 107_at_1-2; *see also* AR 604_at_1-2 (map). The proposal was initiated by Intervenor Alaska LNG Project LLC (“Alaska LNG”), a group of oil and gas companies with leaseholds on the North Slope. *See* 79 Fed. Reg. 55,764, 55,765 (Sept. 17, 2014). Natural gas is co-produced on the North Slope along with oil. AR 604_at_2-14. Due to the remote location and the absence of delivery infrastructure, the gas cannot be widely sold or used as an energy source. AR 107_at_28-29. Instead, it is mostly reinjected into the oil fields to help maintain pressure and thus to facilitate oil recovery. AR 107_at_29.

The Alaska LNG Project would bring the natural gas to the international market through three principal components: (1) a gas treatment plant near the point of extraction on Alaska’s North Slope to prepare the gas for pipeline transport; (2) an approximately 800-mile pipeline to transport the gas across Alaska (north to south) to an export terminal in Nikiski, on the Kenai Peninsula in Cook Inlet; and (3) liquefaction facilities at the terminal to convert natural gas to LNG for overseas transport. AR 107_at_46-47. The proposed facilities would produce up to 20 million metric tons per year of LNG, the equivalent of 929 billion cubic feet

(“Bcf”) per year of natural gas. AR 107_at_46. The Project would also provide interconnection points for in-state natural gas deliveries. AR 107_at_15 n.74.

C. Alaska LNG’s Application for Export Authorization

In September 2014, Alaska LNG sought authority from DOE to export natural gas from the proposed Project in a volume equivalent to the proposed Project capacity—929 Bcf/year—both to countries that have entered free trade agreements with the United States requiring national treatment for trade in natural gas and to countries that have not (so long as trade is not prohibited by U.S. law or policy). 79 Fed. Reg. at 55,764 n.2. In November 2014, as required by Section 3(c), 15 U.S.C. § 717b(c)), DOE granted export authority as to free-trade-agreement countries. AR 107_at_3. For exports to remaining countries, DOE published notice of its initiation of public-interest-review proceedings. 79 Fed. Reg. at 55,767. Sierra Club filed a protest and motion to intervene. AR 107_at_21.

On May 28, 2015, DOE issued a conditional order granting Alaska LNG’s export application, subject to NEPA review being spearheaded by FERC as part of FERC’s review of facility siting. AR 107_at_3. DOE explained that it would participate in the NEPA review as a cooperating agency and would reconsider its public interest evaluation in light of information developed in the NEPA review.

AR 107_at_3-4. In the same order, DOE granted Sierra Club's intervention motion. AR 107_at_20.

D. FERC's EIS and Order

In September 2014, at the same time it sought export authority from DOE, Alaska LNG initiated “pre-filing” proceedings with FERC to begin site assessment and NEPA scoping activities. AR 107_at_22-23. Thereafter, the State of Alaska created a public corporation—Intervenor Alaska Gasline Development Corporation—to work with Alaska LNG on the development and construction of Project facilities. *See* AK Stat. §§ 31.25.005, 31.25.010. In April 2017, the corporation filed an application with FERC for Project siting authority. AR 107_at_23.

FERC published a final environmental impact statement (“EIS”) for the Project in March 2020. 85 Fed. Reg. 14,470 (Mar. 12, 2020). In May 2020, FERC granted siting authority, subject to 165 environmental mitigation conditions, and the direction that the facilities “shall be constructed and made available for service within ten years” or by May 2030. AR 97_at_88, 90-127. The EIS determined that the Project would have significant environmental impacts on certain resources in Alaska, including permafrost, wetlands, forests, and the Central Arctic Herd of caribou. AR 97_at_14 (¶ 25). But FERC concluded that “most impacts would be reduced to less-than-significant levels if the project is constructed and operated in

accordance with applicable laws and regulations and the [required] environmental mitigation measures.” AR 97_at_88 (¶ 251). FERC therefore found that the Alaska LNG Project “is not inconsistent with the public interest.” *Id.* This Court affirmed FERC’s public interest finding and NEPA compliance upon a challenge by Center for Biological Diversity and Sierra Club (Petitioners here). *Alaska LNG I*, 67 F.4th at 1182-88.

E. DOE’s Export Authorization

1. 2020 Order

On August 20, 2020, DOE issued a final order granting Alaska LNG’s application for export authority as to non-free-trade-act countries, building on the 2015 conditional order and presenting DOE’s findings and conclusions on environmental and other public-interest factors. AR 107_at_36-44 (DOE/FE Order No. 3643-A). The order authorizes exports up to 929 Bcf/year (inclusive of any exports to free-trade-act countries) for an initial 30-year period, plus a three-year “make-up period” for authorized volumes not exported during the 30-year period. AR 107_at_40-41. The exports must begin 12 years from the date of the order (or by August 20, 2032). *Id.* DOE determined that the Project would serve the public interest by making additional natural gas available to Alaska consumers, aiding the local Alaska economy, and providing “economic and strategic benefits to the United States and our allies” internationally. AR 107_at_28-31.

To comply with NEPA, DOE adopted the EIS prepared by FERC. AR 107_at_24-27, 32; *see also* AR 107 at 46-53. DOE’s order requires Alaska LNG to comply with all “165 environmental conditions adopted in the FERC Order” and “any other preventative and mitigative measures . . . imposed by federal or state agencies.” AR 107_at_42. DOE also observed that greater exports of gas from the United States could “help [importing] countries reduce their reliance on coal and fuel oil,” potentially reducing global GHG emissions over the 33-year export period. AR 107_at_34. On balance, DOE concluded that there was insufficient evidence “to overcome the statutory presumption” in favor of export authorization, AR 107_at_35-36, meaning there was insufficient evidence to “find[] that the proposed exportation . . . will not be consistent with the public interest,” 15 U.S.C. § 717b(a).

2. *Rehearing and 2023 Orders*

Sierra Club timely filed a request for rehearing, challenging DOE’s environmental review. AR 109. Citing Executive Order 13990, Protecting Public Health and Restoring Science to the Climate Crisis, 86 Fed. Reg. 7037 (Jan. 25, 2021), DOE granted rehearing to conduct two detailed studies of impacts not fully considered in the FERC EIS, namely: (1) a lifecycle analysis of the GHG emissions attributable to the proposed Alaska LNG exports (from production through consumption); and (2) an analysis of the “upstream” impacts that may

occur on the North Slope and surrounding areas from the production of natural gas for the proposed exports. AR 126_at_2-19 (DOE/FE Order No. 3643-B).

The results of those studies—detailed at pp. 13-23, *infra*—were presented in a draft supplemental environmental impact statement (“SEIS”) issued in June 2022. *See* 87 Fed. Reg. 38,730 (June 29, 2022). Following notice and comment proceedings, DOE issued a final SEIS in January 2023. *See* 88 Fed. Reg. 1571 (Jan. 13, 2023).

On April 13, 2023, DOE issued an order and an amended NEPA record of decision, reaffirming, with modification, the 2020 export authorization. AR 162 (DOE/FECM Order No. 3643-C). DOE added a new mitigation condition requiring Alaska LNG to certify, as part of a monthly report on natural gas produced for export, that the prior month’s production

did not result in the venting of byproduct carbon dioxide (CO₂) into the atmosphere, unless required for emergency, maintenance, or operational exigencies and in compliance with the FERC Order.

AR 162_at_27; *see also* AR 162_at_50. DOE noted that “this venting prohibition will reduce emissions of GHGs from the Alaska LNG Project beyond what may have occurred under [DOE’s initial order].” AR 162_at_7. DOE otherwise concluded, for reasons discussed next, that “the information developed on rehearing” did not warrant a change to its prior public interest conclusion. AR

162_at_25-26. Petitioners sought rehearing, AR 171, which, this time, DOE denied, AR 175.

F. DOE's Analysis of Climate Impacts

1. Lifecycle Study

As noted *supra*, DOE prepared a study to analyze the lifecycle emissions from Alaska LNG exports (“lifecycle study”). AR 605_App.C. Those exports would be produced from natural gas that is presently being reinjected into Prudhoe Bay oilfields to maintain pressure for oil production. AR 605_App.C_at_1. Over time, extracting gas for export instead of reinjecting it would reduce oil production. *Id.* But treating the natural gas for export would generate byproduct CO₂, which either would be captured and sequestered in an underground reservoir or could be injected into oilfields to enhance oil recovery. *Id.* Because the production of North Slope natural gas and crude oil are thus interrelated, DOE estimated the “lifecycle” GHG emissions attributable to both products across three alternatives: (1) “business as usual” (no Alaska LNG exports), (2) LNG exports with CO₂ sequestration, and (3) LNG exports using byproduct CO₂ for enhanced oil recovery at the Kuparuk River Unit (one possible location for such activity). *Id.*

The lifecycle study estimated emissions based on potential LNG exports to each of four countries—Japan, South Korea, India, and China—that are likely markets for Alaska LNG. AR 605_App.C_at_1, 37-50. The study described the

energy markets in those countries, market trends, and the emissions profiles of alternative sources. AR 605_App.C_at_9-18. DOE explained that a “range of factors” including, but not limited to, “future oil and gas market conditions, the adoption of policies and measures to limit GHG emissions, and the penetration of low-carbon energy sources” would determine whether and to what extent Alaska LNG exports displace energy production from sources (like coal and oil) with higher lifecycle emissions per kilowatt of energy produced, or sources with lower lifecycle emissions (like wind and solar). AR 604_at_2-16, 4.19-6, 4.19-9. Due to the many uncertainties in forecasting these complex factors, DOE declined to predict market demand or substitution effects in the potential export countries or globally. AR 605_App.C_at_1-2. Instead, in the SEIS, DOE compared Project-associated GHG emissions against two different baselines that did not require a forecast of substitution effects. AR 604_at_4.19-5.

2. *Equivalent Energy Comparison*

The lifecycle study assessed and compared emissions from the three alternatives under an assumption of equivalent energy use, meaning that the baseline no-Project alternative would include the same global gas and oil consumption as the two Project alternatives. AR 604_at_4.19-1_to_4.19-2, 4.19-6_to_4.19-10. For the two Project alternatives, DOE started with the total proposed Alaska LNG export volume, and calculated GHG emissions that would

occur across the 33-year export period from the proposed North Slope production, treatment, pipeline transport, liquefaction, ocean transport to the identified countries, and final consumption of such gas. AR 605_App.C_at_4-8. For the no-action alternative, DOE assumed the same amount of LNG would be exported to and consumed in the target countries from alternative “global supply.” AR 604_at_4.19-6. To provide a “benchmark representation” of GHG emissions from “alternative natural gas sources,” DOE used emissions data from “average production” in the lower-48 states as a “proxy” case, due to the high quality of such data (compared to other global sources). AR 604_at_4.19-4; *see also* AR 605_App.C_at_3, 33-34. DOE treated GHG emissions from co-produced crude oil similarly. AR 604_at_4.19-6.

By holding oil and gas consumption constant across all three alternatives, the lifecycle study isolated potential changes in global emissions attributable to sourcing LNG from the proposed Alaska LNG Project instead of from “global supply” (represented by supply from the lower-48 states). The study showed that: (1) sourcing LNG from Alaska could marginally reduce GHG emissions, as compared to the representative proxy case, due to efficiencies from the co-production of natural gas and oil and shorter transportation distances to the most likely export countries, and (2) utilizing byproduct CO₂ for enhanced oil recovery could also slightly lower GHG emissions as compared to sequestering byproduct

CO₂ and producing the same quantities of crude oil elsewhere. AR

605_App.C_at_15-16, 36-45; AR 604_at_4.19-8.

3. *Non-Equivalent Energy Comparison*

In addition, the SEIS reported and compared lifecycle emissions under the three alternatives by themselves (*i.e.*, without regard for the fuel consumption and energy production that would occur in the absence of Alaska LNG exports). AR 604_at_4.19-8. This enabled DOE to consider the net increase in global GHG emissions that might occur across the 33-year export period if GHG emissions from Alaska LNG exports and associated changes in North Slope crude oil production are entirely additive (*i.e.*, if Alaska LNG exports would not displace other energy production and use). *Id.*

In this comparison, Alternative 1, the baseline alternative (no LNG exports), includes emissions from continued North Slope crude oil production only. AR 604_at_4.19-10. Under Alternative 2 (LNG exports with CO₂ sequestration), oil production would drop over time, but cumulative GHG emissions from oil and gas production would be higher than under Alternative 1. *Id.* Under Alternative 3, the use of byproduct CO₂ for enhanced oil recovery at the Kuparuk River Unit would more than offset declines in oil production at the Prudhoe Bay Unit, resulting in the same LNG production as Scenario 2, slightly higher oil production than the

baseline alternative, and the highest net GHG emissions among the three alternatives. *Id.*

4. *Social Costs*

The SEIS calculated lifecycle GHG emissions for each of the three scenarios compared to both baselines (*supra*) and reported separate sets of results for each potential export country and for each of two methods of power generation (with and without carbon capture and sequestration). AR 604_at_4.19-9_to_4.19-11. The SEIS then utilized guidance from an interagency working group to calculate the “social cost” of the various projected differences in emissions between each scenario and baseline, using four different conversion factors that produce a range of estimated costs. AR 604_at_4.19-12_to_4.19-14.

As just noted, Alternative 3 (LNG exports with enhanced oil recovery) has the highest GHG emissions among the three alternatives in the non-equivalent energy comparison. AR 604_at_4.19-10. The emissions in that scenario are highest assuming end use in India (the farther transport destination) and power generation without carbon capture and sequestration. *Id.* Under that most extreme version of Alternative 3—assuming Alaska LNG exports do not displace power generation from any other GHG emitting sources—such exports would add the equivalent of 1,922 million metric tons of CO₂ to global emissions across the 33-year export period. *Id.* Under the social cost conversion factor with the highest

(most extreme) cost estimate, such emissions would equate to \$249 billion in costs to society. AR 604_at_4.19-14. Altogether, considering all potential export destinations, power generation with and without carbon sequestration, and all cost estimates, the social costs of Project-associated GHG emissions (if entirely additive to global emissions) would range from a high of \$249 billion to a low of \$7.2 billion. *Id.*

In contrast, if global oil and gas consumption remain constant (as in the equivalent-energy comparison), sourcing LNG from Alaska with enhanced oil recovery—instead of from other global supply (represented by data from production in the lower-48 states)—would result in a net *decrease* in global emissions, which would range from 204 million metric tons to 276 million metric tons. AR 604_at_4.19-10_to_4.19-11. The associated savings in social costs would range from \$2.7 billion to \$37.5 billion. AR 604_at_4.19-13.

G. North Slope Production Impacts

1. Potential New Development

As explained above, the Alaska LNG Project would produce natural gas from two existing production units, the Prudhoe Bay Unit and the Point Thomson Unit, and potentially would use byproduct CO₂ from natural gas treatment for enhanced oil recovery. AR 162_at_33. In the SEIS, DOE considered potential impacts from new facilities—pads, wells, pipelines, and roads—that would be

needed to produce the gas proposed for export, and to enable enhanced oil recovery at the Kuparuk River Unit (the example studied for such activity). AR 604_at_2-9_to_2-14.

Such new production facilities “are not part of” the project proposed by Intervenor Alaska Gasline Development Corporation, but instead would be constructed and operated, as warranted, by the companies that operate the oil fields. AR 604_at_2-9, 2-26 n.13. Because those companies have not completed “design and engineering processes” for the subject improvements, DOE observed that “[d]etailed locations” for the relevant facilities “are not available,” AR 604_at_2-26. But DOE considered the scale and general location of the potential new development, *see* AR 604_at_2-9_to_2-14; *see also* AR 162_at_33, as follows.

- Approximately 75 percent of Project LNG exports are expected to be sourced from the Prudhoe Bay Unit, which presently contains around 900 oil wells on 40 drilling pads. AR 604_at_2-12. Enhanced gas production for LNG exports is expected to require an approximately 5-acre expansion of the existing 42-acre central gas facility pad, around 10 new production and injection wells, and various new pipelines to transport natural gas from production to treatment. AR 604_at_2-12_to_2-13.

- The Point Thomson Unit presently produces natural gas condensate that is reinjected into Prudhoe Bay oil fields to aid oil production. AR 604_at_2-10. To provide approximately 25 percent of the LNG proposed for export, an existing 51-acre well pad would be expanded by around 7 acres to allow for three new gas production wells and one new injection well. AR 604_at_2-10_to_2-11.
- The potential enhanced oil recovery at the Kuparuk River Unit would require an approximately 30-mile pipeline to transport byproduct CO₂ from the proposed Prudhoe Bay gas treatment plant to the oilfield, and approximately 19 miles of pipelines to distribute CO₂ for injection at the oilfield. AR 604_at_4.4-5.

2. *Enhanced Production Impacts*

Because the “exact locations of proposed disturbances” from the above developments “are not known,” DOE did not conduct or have access to “site specific field surveys for . . . natural and cultural resources.” AR 604_at_4.21-1. Nor did DOE have access to floodplain mapping. *Id.* But DOE considered the procedures and methods particular to the North Slope’s arctic environment that would be used to construct required facilities, and the federal, state, and local laws governing facility construction and operations. AR 604_at_2-24_to_2-37. Because new gas-production facilities would represent a relatively small expansion

of existing oil-production facilities mostly within already-disturbed areas, DOE concluded that the new facilities would have negligible to less-than-significant impacts on natural and cultural resources on issues of concern for the impact area, with a few exceptions, as follows. *See* AR 603_at_S-10_to_S-26.

a. Permafrost and Wetlands

DOE determined that some anticipated development for natural gas production—including the expansion of gravel pads at the Prudhoe Bay Unit and Point Thomson—would potentially degrade permafrost by disturbing soils and raising soil temperatures, AR 604_at_4.2-2_to_4.2-4, and that the same activities and associated landfilling could degrade or destroy wetlands, AR 604_at_4.4-2_to_4.4-5. By themselves, the potential disturbances are negligible compared to the extent of permafrost and wetlands on the North Slope. AR 604_at_3.2-2_to_3.2-3, 3.4-2.³ For these reasons, and because facility construction and operation would be subject to various permitting, planning, and other mitigation requirements, DOE determined that impacts from Project gas production would be less than significant. AR 604_at_4.2-5_to_4.2-6, 4.4-5_to_4.4-6; AR 603_at_S-12_to_S-13.

But DOE identified 28 additional projects also planned or proposed for northern Alaska—oil and gas development, transportation projects, and other

³ Permafrost covers nearly the entire North Slope region, AR 604_at_3.2-2. Wetlands comprise approximately 61 percent of the land area, AR 604_at_3.4-2.

activities, AR 604_at_4.20-2_to_4.20-7—that together with Project-associated natural gas development could have *cumulatively* significant adverse impacts on permafrost, wetlands, and some other resources, AR 603_at_S-12_to_S-23. DOE observed that “cumulatively,” the identified projects likely “would result in significant impacts due to the permanent loss of wetlands,” AR 604_at_4.20-11, but that permitting requirements could mitigate or “offset” such losses, *id.*; AR 603_at_S-14. DOE similarly determined that with planning and mitigation measures, the “projects cumulatively could result in less-than-significant impacts” on permafrost. AR 604_at_4.20-10.

b. Subsistence Use and Environmental Justice

DOE also found potentially significant cumulative impacts to subsistence users. AR 603_at_S-23. Oil and gas development and similar activities on the North Slope could displace caribou and other fish and wildlife from impacted areas, AR 604_at_3.14-1_to_3.14-6, 4.14-1_to_4.14-6, which could affect subsistence users in Kaktovik and Nuiqsut, the native communities in closest proximity to gas production areas. AR 603_at_S-19; AR 604_at_3.14-3_to_3.14-4, 4.11-8.

Kaktovik is on an offshore island approximately 55 miles east of the eastern boundary of the Point Thomson Unit. AR 604_at_3.14-3. Nuiqsut is inland on the Colville River, approximately 13 miles west of the western boundary of the

Kuparuk River Unit. AR 604_at_3.14-4; AR 93_at_4-760_to_4-770 (FERC EIS).

The communities are sufficiently distant from the production units to avoid disparate impacts on human health and safety, such as from air pollutants. AR 604_at_4.11-9. And DOE found no significant direct, indirect, or cumulative impacts to fish and wildlife on which the communities depend. AR 603_at_S-15_to_S-17; AR 604_at_4.6-1_to_4.6-7, 4.20-11_to_4.20-12. But “functional” habitat loss in the proximity of development is possible, potentially increasing areas that wildlife and subsistence users would avoid. AR 604_at_4.20-16.

DOE observed that the affected communities “as a whole would use other areas within the region . . . away from oil and gas development activities,” AR 603_at_S-23, and that impacts might be mitigated by limiting construction to the winter when subsistence use is lowest and through coordinating with native communities. AR 604_at_4.14-6. But individual members of the Kaktivak and Nuiqsut communities could be disproportionately affected by reduced local harvests and increases in travel costs for subsistence needs, AR 604_at_4.14-3, 4.20-14, 4.20-16, which DOE identified as an environmental justice concern. AR 603_at_S-19; AR 604_at_4.11-8_to_4.11-9, 4.20-14.

H. Public-Interest Determination

In its April 2023 order on rehearing, DOE acknowledged—based on the SEIS—that the “approved exports could produce additional environmental

impacts” that DOE had not considered in its initial export authorization order, AR 162_at_22. Those impacts include potentially significant cumulative impacts on permafrost, wetlands, and native subsistence activities, AR 162_at_13-15, as well as potential climate impacts detailed by the emissions modeling and social cost analysis in the SEIS. AR 162_at_15-16. DOE observed, however, that most North Slope impacts could be reduced to less-than-significant levels with mitigation measures and environmental planning. *Id.* DOE further observed that “there is substantial uncertainty regarding the magnitude of [newly identified] environmental impacts, particularly GHG emissions and climate impacts.” AR 162_at_22.

“Because of the uncertainties in the global energy markets and the extent to which the Project may substitute for other emitting power generation,” DOE determined that it could not “draw a definitive conclusion about the magnitude” of Project-associated “climate impacts.” *Id.* DOE explained that neither perspective in the SEIS reflects the likely change in global GHG emissions. AR 162_at_23-24. Because the Project would significantly add to global LNG supply, to assume perfect substitution (no change in global LNG consumption) “likely understates” the Project’s “true impact.” AR 162_at_23. But to assume that all GHG emissions from North Slope LNG (and associated changes in crude oil production) would be

additive to global markets “likely significantly overstates” Project impacts. AR 162_at_24.

DOE observed that “markets likely would substitute a combination of other LNG and reduced global demand for LNG, including—over the term of the [export] authorization—a range of emitting and non-emitting resources and reduced energy consumption,” likely causing some “incremental” increase in global GHG emissions, as compared to emissions from “global energy supply in the absence of Alaska LNG exports.” AR 162_at_23-24. But DOE provided a qualified judgment that net GHG emissions associated with the Alaska LNG Project—“at the very least those in the near to medium years of the approximately 33-year export period”—“are likely to be closer” to emissions estimates assuming an energy equivalent baseline (full substitution of LNG and co-produced oil). AR 162_at_24-25.

DOE reiterated its prior determination that Alaska LNG exports likely would produce economic benefits, including “indirect job creation in the exploration, development, production, and transportation of natural gas; improvements in consumer welfare in Alaska; lower natural gas prices in Alaska; and overall economic benefits for the United States as a whole, as represented by gross domestic product.” AR 162_at_25. And DOE reiterated its prior determination that Alaska LNG exports will have positive benefits “to free trade and energy

security,” by “improving energy security for many U.S. allies and trading partners.” *Id.*

“In weighing the acknowledged but highly uncertain climate impacts against the economic and international security benefits of Alaska LNG’s approved exports, DOE conclude[d] that the information developed on rehearing [did] not present a sufficient basis” for a finding that Alaska LNG exports would be inconsistent with the public interest. AR 162_at_25-26. Accordingly, DOE reaffirmed its prior order, with the added condition against the venting of byproduct CO. AR 162_at_26-27.

SUMMARY OF ARGUMENT

1. DOE has broad discretion under the Natural Gas Act to discern the public interest relating to natural gas exports. Here, DOE reasonably determined, based on a thorough consideration and discussion of all pertinent benefits and potential harms, that it lacked a basis for finding that Alaska LNG exports would be inconsistent with the public interest. DOE’s conclusion is supported by an extensive record, and DOE’s scientific and technical judgments are entitled to deference.

As to potential climate impacts, DOE exhaustively quantified the lifecycle emissions that could result from Alaska LNG exports and reasonably presented those analytical results in comparison to two baselines: (1) a non-equivalent energy

baseline, which assumed Alaska LNG exports would be entirely additive to global energy consumption; and (2) an “equivalent energy” baseline, which assumed that the same amount of LNG (and co-produced crude oil) would be sourced from “global supply” (as represented by production in the lower-48 states). The first comparison showed the maximum potential Project-associated increase in global GHG emissions, while the second comparison showed that GHG emissions from Alaska LNG would be slightly lower than emissions from other globally sourced LNG. Both comparisons offered important information that informed DOE’s understanding of potential climate impacts.

DOE explained that the Project’s climate impacts would ultimately depend on the energy sources or conservation measures that Alaska LNG exports displace in foreign markets. Consistent with this Court’s prior decisions in LNG export cases, DOE reasonably declined to forecast such substitution effects as part of its quantitative emissions modeling, because such effects are dependent on future economic conditions, policy and regulatory decisions, technological advances, and geopolitical events affecting foreign and domestic markets, all of which DOE found inherently difficult to predict.

Instead, DOE provided a qualified judgment that the Project likely would result in a net increase in global GHG emissions, but that net global emissions are likely to be closer to those that would occur with perfect substitution of Alaska

LNG for other LNG, than those that would occur if there were no substitution effects with any other energy source. This view is consistent with market conditions and trends that Petitioners highlight, and the likelihood that Alaska LNG will substitute for a mix of energy sources, including sources with higher GHG emissions.

DOE also reasonably observed, when weighing potential Project harms and benefits, that on this record climate impacts are more uncertain than the Project's benefits. Uncertain demand for Alaska LNG exports raises the prospect that the Project will not be carried out, which would result in no Project benefits or harms. But climate impacts are subject to additional uncertainties relating to market substitution effects that would occur in response to Project operation. Those same uncertainties do not apply to economic and energy-security benefits.

Nor did DOE fail to account for non-climate impacts in its public-interest calculus. Petitioners first raised their "market need" argument—that DOE must assess "market need" to ensure against unnecessary construction impacts—*after* DOE had completed its rehearing studies and released the draft SEIS. Because Sierra Club did not raise this argument in its initial rehearing application, it is not subject to this Court's review. Regardless, DOE has a longstanding policy and practice of weighing the potential harms and benefits that might result from natural

gas importation or exportation if demand materializes. Petitioners fail to show that DOE acted arbitrarily in following that policy here.

Petitioners also fail to show that DOE put its thumb on the scale of the public-interest calculus when observing that cumulative impacts from North Slope natural gas development and other projects could be reduced to less-than-significant levels with mitigation and environmental planning. DOE has no regulatory authority over such developments. In assessing indirect and cumulative effects of its export authorization decision, DOE reasonably may assume that relevant projects will be constructed consistent with mitigation and planning requirements imposed by FERC and other federal, state, and local agencies.

At bottom, DOE reasonably exercised its broad discretion in assessing and weighing the pertinent public-interest factors. Petitioners do not show otherwise.

2. DOE also fully complied with its NEPA obligations. DOE participated in and adopted the EIS prepared by FERC, and subsequently prepared the SEIS and associated studies to evaluate potential climate impacts from lifecycle GHG emissions and gas-production impacts on the North Slope. DOE's decision to compare Project-associated GHG emissions against two baselines—one assuming perfect substitution of Alaska LNG for other LNG, the other assuming zero substitution of any other energy source—was not contrary to the NEPA rule that requires agencies to consider the “no action” alternative. Petitioners do not

dispute DOE's determination that the relevant "no action" alternative here is denying export authorization and that such a denial likely would mean no Alaska LNG Project. Consistent with this Court's ruling in *Alaska LNG I*, DOE simply used two different "no action" baselines to provide two different and important perspectives relevant to potential climate impacts. DOE reasonably declined to provide a more definitive quantitative estimate of baseline GHG emissions, given the inherent difficulty of reliably forecasting market substitution effects.

DOE also acted in conformity with the NEPA regulations concerning incomplete or unavailable information. DOE explained that it did not forecast market substitution effects as part of its quantitative emissions modeling due to inherent uncertainties related to such forecasts. In addition, DOE explained that the precise location for North Slope gas production facilities is unknown because development planning has not been completed, and that there are no comprehensive North Slope flood plain maps. DOE reasonably addressed the missing information and took the requisite "hard look" at affected resources, notwithstanding the missing information. No more was required.

STANDARD OF REVIEW

This Court reviews DOE's actions—including its public-interest determination under the Natural Gas Act and its NEPA compliance—under the "arbitrary and capricious" standard of the Administrative Procedure Act. *Sierra*

Club, 867 F.3d at 196, 202; 5 U.S.C. § 706(2). DOE’s action must be upheld unless this Court determines that DOE failed to offer a “satisfactory explanation for its action” or “entirely failed to consider an important aspect of the problem.” *Prohibition Juice Co. v. U.S. Food & Drug Admin.*, 45 F.4th 8, 18 (D.C. Cir. 2022) (quoting *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)). This Court will not “substitute its judgment” for that of DOE, and when considering DOE’s evaluation of “scientific data within its technical expertise,” this Court will afford DOE “an extreme degree of deference.” *See Myersville Citizens for a Rural Community v. FERC*, 783 F.3d 1301, 1308 (D.C. Cir. 2015) (cleaned up); *see also In re Permian Basin Area Rate Cases*, 390 U.S. 747, 767 (1968).

“NEPA is a purely procedural statute, and an agency therefore enjoys latitude” when preparing an environmental impact statement. *Alaska LNG I*, 67 F.4th at 1181. This Court will not set aside an agency action on NEPA grounds if the agency has taken a “hard look” at environmental consequences, *id.*, and the environmental impact statement “contains sufficient discussion of the relevant issues and opposing viewpoints and the agency’s decision is fully informed and well-considered,” *id.* (quoting *Gulf Restoration Network v. Haaland*, 47 F.4th 795, 799-800 (D.C. Cir. 2022)).

ARGUMENT

I. DOE’s public interest determination under the Natural Gas Act was reasonable.

Under the Natural Gas Act, DOE was obligated to approve the export of LNG from the Alaska LNG Project unless it found that the exports would “not be consistent with the public interest.” 15 U.S.C. § 717b(a). The Act thus contains a “general presumption” in favor of authorization and gives DOE broad discretion to identify the pertinent public-interest factors and to weigh public benefits and harms. *See Sierra Club*, 867 F.3d at 203. Though Petitioners disagree with certain aspects of DOE’s approach to the public-interest calculus in this case, they fail to show that DOE acted arbitrarily.

A. DOE reasonably weighed climate impacts.

In weighing the public interest relating to Alaska LNG exports, DOE fully acknowledged potential climate impacts. AR 162_at_21-25. DOE’s lifecycle study quantified the cumulative GHG emissions that would occur from Alaska LNG exports and co-production of oil—from extraction through final consumption—across the 33-year export period. AR 604_at_4.19-1_to_4.19-11. The SEIS disclosed the net *increase* in emissions from North Slope oil and gas operations that would be attributable to the Project, as well as the marginal *decrease* in global emissions that could occur if Alaska LNG merely substituted for LNG that otherwise would be provided by global supply (represented by

average production in the lower-48 states). AR 604_at_4.19-6_to_4.19-11. In addition, the SEIS disclosed, in accordance with interagency guidance, the “social cost” associated with the projected emissions. AR 604_at_4.19-12_to_4.19-14.

Petitioners do not fault DOE’s calculation of possible Project-associated emissions or the potential social costs of those emissions. Instead, Petitioners contend that DOE arbitrarily declined to forecast the precise extent to which Project-associated GHG emissions will add to global GHG emissions considering market substitution effects. Petitioners argue (Brief at 22-36) that DOE’s emissions modeling is “useless” without a quantitative forecast of market substitution effects, that DOE improperly relied on uncertainties in future energy markets to discount climate harms, and that DOE failed to give equal weight to alleged comparable uncertainties in potential Project benefits. These arguments are without merit.

1. *DOE reasonably considered two perspectives to assess Project-associated GHG emissions.*

a. Petitioners misconstrue DOE’s analysis.

Petitioners err in contending (Brief at 22-28) that the two SEIS perspectives on Project-associated emissions are “useless” or “unhelpful.” *First*, no assessment of the potential change in net global emissions relating to the Alaska LNG Project is possible without determining the potential emissions from the Project by itself (without market substitution effects). By comparing the GHG emissions that

would result from all gas and oil to be produced under the Project with the GHG emissions from business-as-usual oil production alone (the non-equivalent energy baseline), the SEIS disclosed the maximum increase in global GHG emissions that could be attributed to the Project. *See* AR 604_at_4.19-10. To be sure, as Petitioners acknowledge (Brief at 10, 22-23, 25, 28, 41), this worst-case scenario is an “extreme” and “unlikely” outcome. Without Alaska LNG exports, the destination countries are likely to consume LNG from other global supply, or to produce power from a mix of sources that include other GHG-emitting sources. *See* AR 162_at_23-24. Nonetheless, calculating Project-associated emissions without market substitution effects—especially given the difficulty in forecasting such effects—is undeniably necessary for quantifying the worst-case potential increase in global GHG emissions, which aids in assessing potential climate impacts.

Second, comparing Project-associated emissions to an equivalent energy baseline—under which the same amount of LNG and Project-associated oil would be provided to global markets from alternative supply—is useful for a different purpose, namely, to estimate emissions specific to North Slope production and supply. The lifecycle analysis study showed that sourcing LNG from the Alaska LNG Project, as compared to the proxy case (using data from average production in the lower-48 states), “would not increase GHG emissions,” AR 604_at_4.19-15,

and could *decrease* emissions, primarily as a result of a reduced “energy burden” (and lower cumulative GHG emissions) from co-producing oil and gas, AR 604_at_4.19-8. As DOE acknowledged, “perfect substitution of LNG” is also unlikely. AR 162_at_24. But DOE explained that the two perspectives helped illuminate the potential change in global GHG emissions that could result from the Project. AR 162_at_23-24.

Moreover, contrary to Petitioners’ argument (Brief at 24), DOE did not “refuse to narrow down” the range of potential outcomes. Rather, “due to uncertainties inherent in predicting future energy market behavior and consumption around the world,” DOE declined to forecast market substitution effects as part of its *quantitative* emissions modeling. AR 162_at_24; *see also* AR 605_App.C_at_9. DOE fully acknowledged that market demand and substitution effects are an important aspect of determining climate impacts. *Cf. Motor Vehicles*, 463 U.S. at 43. Accordingly, DOE provided a *qualitative* discussion of market trends. AR 605_App.C_at_9-14. And in its order, DOE provided a qualified judgment on substitution effects and potential climate impacts, based on its administrative expertise. AR 162_at_23-24.

Specifically, given the “significant” amount of LNG exports the Project could add to global supply, DOE opined that the absence of Alaska LNG likely would result in a “combination” of substitution effects in foreign markets,

including the use of LNG from other sources, power generation from a “range of [alternative] emitting and non-emitting” sources, and “reduced energy consumption.” AR 162_at_23-24. For this reason, DOE observed that the Project likely would incrementally increase global GHG emissions “as compared to global energy supply in the absence of the Project.” AR 162_at_24. But DOE opined that Project-associated emissions “are likely to be closer” to the energy-equivalent baseline than the non-energy equivalent baseline, “at the very least in the near to medium years” of the export period. AR 162_at_24-25. This technical judgment is within DOE’s administrative expertise and is entitled to an “extreme degree of deference.” *See Myersville*, 783 F.3d at 1308.

Contrary to Petitioners’ argument (Brief at 25), DOE’s judgment is not “without any apparent support.” At the time of DOE’s decision to reaffirm export authorization for the Alaska LNG Project in the amount of approximately 2.55 Bcf per day, DOE had already authorized exports from the lower 48-states in the amount of 47.28 Bcf/day. *See* 88 Fed. Reg. at 25,274 (AR 168). In April 2023, DOE issued a policy statement announcing that it would extend the commencement deadline in existing export-authorization orders (date by which the authorized entity must begin LNG exports) only in limited circumstances. *Id.* at 25,276-77. DOE announced this policy to address uncertainty caused by a substantial “authorization overhang.” *Id.* DOE explained that some authorized

exporters had not begun to construct export facilities and that the then-authorized export volume was more than double the realized export capacity (exports plus export capacity under construction) of 24.19 Bcf/day. *Id.* Petitioners themselves cite this statement as evidence of “weak market need” for LNG exports. *See* Brief at 35. If export demand is weak, then Alaska LNG exports are likely to displace LNG that would have been sourced from other global supply, at least in the near to medium term as DOE observed. AR 162_at_24-25.

Moreover, Petitioners err in arguing (Brief at 14, 25, 38, 45) that the energy-equivalent baseline, when used as a benchmark for measuring Project-associated contributions to global GHG emissions, provided an “extreme” “best-case” scenario. The energy-equivalent emissions modeling in DOE’s lifecycle analysis study disregarded *all* market substitution effects, including effects that could be *beneficial* in terms of the Project’s potential climate impact. *See* AR 604_at_4.19-1_to_4.19-6. If Alaska LNG exports displace future power generation that otherwise would come from coal—as compared to the baseline case of displacing LNG from “global supply”—the Project would result in a greater *reduction* in global GHG emissions than reported in the energy-equivalent comparison. *Id.*; *see also* AR 605_App.C_at_11 (noting coal’s higher “global warming potential”). The likelihood that Alaska LNG exports would displace some alternative LNG and coal-power generation—at least in the near to medium term—further supports

DOE's opinion that Project-associated changes in global emissions are likely to be "closer" to the energy-equivalent baseline. AR 162_at_24-25.

b. Petitioners' authorities are inapposite.

For the above reasons, Petitioners err in contending (Brief at 24, 47) that DOE's use of two different baselines for assessing Project-related emissions and associated climate impacts is akin to the regulatory approach that this Court rejected in *Nat'l Ass'n of Regulatory Util. Comm'rs v. U.S. Dept. of Energy*, 736 F.3d 517 (D.C. Cir. 2013) ("*NARUC II*"). In *NARUC II*, this Court addressed a statute that directs DOE to impose an annual fee on nuclear power plant operators for waste disposal costs, to determine annually the adequacy of that fee in relation to the fund balance and projected disposal costs, and to refund operators for overpayments. *Id.* at 518; *see also Nat'l Ass'n of Regulatory Util. Comm'rs v. U.S. Dept. of Energy*, 680 F.3d 819, 821-22 (D.C. Cir. 2012) ("*NARUC I*"). After rejecting Nevada's Yucca Mountain as a viable nuclear waste repository, DOE produced a report indicating that the future balance of the waste disposal fund (current balance plus projected fees and earned interest) would range between a \$2 trillion deficit to \$4.9 million surplus, depending on the disposal strategy adopted. *NARUC II*, 736 F.3d at 519. This Court found the reported range of costs "so large to be absolutely useless" to DOE's statutory duty to determine "the adequacy of annual fees paid" by nuclear plant operators. *Id.* at 519.

Because this conclusion involved an entirely different statutory scheme, it says nothing about the utility of DOE’s emissions modeling here. It is true that two baselines DOE used to assess Project-associated GHG emissions resulted in a broad range of potential emissions. *See* AR 604_at_4.19-10_to_4.19-11. But unlike the statute in *NARUC II*—which directed DOE to *quantify* waste annual disposal costs to ensure adequate funding for a waste repository and to enable plant operators to be reimbursed for overpayments—the Natural Gas Act does not require DOE to quantify GHG emissions, much less to do so for any specific purpose. *See* 49 U.S.C. § 717b(a). The Act simply directs DOE to consider the “public interest.” *Id.* As explained (pp. 32-38, *supra*), DOE’s analysis was sufficient to enable DOE to weigh potential climate impacts as part of its public interest review.

Moreover, in *NARUC II*, this Court did not set aside DOE’s report (as a basis for establishing annual fees) based solely on the wide range of estimates for disposal costs. *See NARUC II*, 736 F.3d at 519. Rather, this Court observed that DOE’s report—which estimated costs of Yucca Mountain *alternatives*—was directly contrary to a statutory amendment that precluded alternative sites. *Id.* This Court concluded that until DOE (with Congressional approval) settled on a permanent disposal site, it would be “unfair to force” nuclear-plant operators “to pay fees for a hypothetical option, the costs of which might well . . . be already

covered” by past fees. *Id.* at 520. If the relevant statute had directed DOE to assess an annual fee sufficient to cover disposal at any potential location consistent with the most pessimistic cost estimate, the outcome of *NARUC II* might well have been different. *NARUC II* does not stand for the proposition that an agency’s analysis of an issue is per se “useless” or arbitrary, simply because it reports a wide range of potential outcomes. *Id.* at 519-20.

Petitioners also err in asserting (Brief at 49) that DOE’s assessment of climate impacts conflicts with decisions from other courts on the issue of market substitution effects. As Petitioners observe (*id.*), several courts have set aside agency decisions facilitating coal production, when such decisions have been predicated, in part, on unfounded assumptions that expanded coal production would have inconsequential impacts on GHG emissions due to “perfect substitution” in coal markets. *See WildEarth Guardians v. Bureau of Land Mgt.*, 870 F.3d 1222, 1235 (10th Cir. 2017) (finding that agency’s “perfect substitution assumption lacks support in the record”); *Mont. Env’tl. Info. Ctr. v. U.S. Office of Surface Mining*, 274 F.Supp.3d 1074, 1098 (D. Mont. 2017) (rejecting as “illogical” an agency’s finding that GHG emissions from coal lease expansion would have “no effects . . . because other coal would be burned in its stead”); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F.Supp.3d 1174, 1197-98

(D. Colo. 2014) (rejecting “perfect substitution” conclusion based solely on a DOE report projecting a “small annual increase in the [global] demand for coal”).

But DOE’s public-interest analysis did not assume perfect market substitution for Alaska LNG exports. Instead, as Petitioners acknowledge (Brief at 51), DOE “posited” perfect substitution of LNG (and co-produced oil) “for analytical purposes” to provide *one* perspective on potential Project-associated emissions. But that was not a “best case” perspective from the standpoint of reducing GHG emissions because it did not account for the possibility of Alaska LNG exports displacing power generation from coal (with higher GHG emissions). AR 162_at_23-25. DOE simultaneously considered emissions that would occur without any market substitution. *Id.* And DOE explained that neither scenario (perfect substitution nor no substitution) was likely to occur. *Id.* In considering both perspectives and other information to assess likely climate impacts, with the disclaimer that market substitution effects are highly uncertain, DOE did not, as Petitioners contend (Brief at 51), give “undue weight” to an improper “perfect substitution assumption.” *Cf. WildEarth Guardians*, 870 F.3d at 1235.

2. *DOE reasonably declined to forecast market substitution effects.*

Petitioners also mistakenly assert (Brief at 26-27) that DOE should have forecast market substitution effects in its quantitative emissions modeling. This Court has previously affirmed a DOE decision not to engage in such forecasting.

See Sierra Club, 867 F.3d at 197-99. In that case, when assessing the environmental impacts of a proposed LNG export project, DOE declined to conduct a “quantitative” analysis of impacts from induced natural gas production, citing difficulties in predicting market factors that would determine the extent and location of increased production. *Id.* at 198. This Court affirmed, noting that “the price competitiveness of U.S. LNG in foreign energy markets depends on numerous factors that are inherently difficult to predict, including the pace of technological change, U.S. and international economic conditions, potential market disruptions, and U.S. and foreign energy and environmental regulations.” *Id.* at 198-99 (quoting DOE report).

The same conclusion is warranted for DOE’s analysis here. As DOE explained, future power generation in the likely destination countries will be driven by a wide range of factors—including the availability of LNG and other fossil fuels from global sources, the cost and availability of nuclear power and power from renewable sources, public policy decisions relating to climate change and other issues, technological changes impacting power generation and use, economic and population growth, and geopolitical events—all of which are uncertain and difficult to predict, especially over a 33-year timeframe. AR 604_at_2-16, 4.19-6.

Petitioners postulate that DOE could have borrowed modeling assumptions from a 2014 report by the National Economic Research Associates (“NERA”),

which Alaska LNG submitted to show the Project's economic benefits. Using international market projections from 2011 and 2013, the report projected that Alaska LNG exports in the authorized amount of 0.93 trillion cubic feet per year would lead to a net increase in U.S. LNG exports of approximately 0.6 trillion cubic feet per year. AR 28_App.F_at_13, 42. In other words, as Petitioners observe (Brief at 22), the NERA report projected that Alaska LNG exports would displace other U.S. exports to some extent, but that approximately two thirds of the Alaska export volume would be additive in relation to the "baseline" U.S. exports that otherwise would occur. AR 28_App.F_at_25, 42.

Significantly, however, the NERA report (1) did not project the change in global LNG exports, (2) did not project the form of power generation that Alaska LNG might displace (*e.g.*, coal, nuclear, or renewables), and (3) did not project whether Alaska LNG exports would significantly alter the profile of global power generation (mix of sources) across the 33-year export period, or GHG emissions from such power generation. *Id.* To forecast changes in global GHG emissions and any associated climate impacts, DOE would have needed to create a model considerably more complex than the model used in the NERA report.

Moreover, as DOE observed, the projections in the NERA report are from a time "when the U.S. and global LNG market[s] were far less developed." AR 175_at_51. Significantly, the report projected that U.S. LNG exports (absent the

Alaska LNG Project) would plateau at 1.14 trillion cubic feet between 2038 and 2048. AR 28_App.F_at_25. As it happened, U.S. LNG exports from the lower 48-states reached more than 3.86 trillion cubic feet by the end of 2022. AR 170. And the authorized LNG export capacity from the lower-48 states was then 17.3 trillion cubic feet. 88 Fed. Reg. at 25,274.

Petitioners argue (Brief at 27, 54) that DOE could have used some other market projections that are more “updated” than those in the NERA report. But this argument misses the point. As the NERA report illustrates, market projections are frequently unreliable. The issue here is not whether DOE conceivably could have projected substitution effects in global energy markets as part of its emissions modeling by making assumptions about a host of highly unpredictable matters. The question is whether DOE reasonably concluded that such projections would not have been sufficiently reliable as a forecasting tool to add value to DOE’s emissions modeling for purposes of DOE’s public interest review. DOE did not act arbitrarily and capriciously in declining to model substitution effects, given the considerable forecasting uncertainties. *Sierra Club*, 867 F.3d at 202.

In this regard, Petitioners put the cart before the horse when asserting (Brief at 22) that the “lack of clarity” surrounding the Project’s climate impacts is of DOE’s “own making,” *i.e.*, created by DOE’s decision to compare Project emissions to two unlikely scenarios. As explained, DOE’s approach was dictated

by uncertainties surrounding substitution effects in foreign energy markets. *See* AR 175_at_17. DOE's approach did not create those uncertainties.

3. *DOE reasonably weighed potential climate impacts and Project benefits.*

DOE also reasonably weighed harms and benefits. Petitioners argue (Brief at 31-36) that DOE acted arbitrarily when failing to ascribe the same uncertainties to Project-associated benefits that it ascribed to Project-associated climate impacts. *See* AR 162_at_26. But the relative uncertainties are not the same.

Petitioners assert (Brief at 31) that global demand for U.S. LNG exports is uncertain and potentially insufficient to “prompt construction and operation” of the Alaska LNG Project. In such a case, there would be no climate impacts and no economic benefits. But given the statutory “presumption in favor of exports,” *Sierra Club*, 867 F.3d at 203—which Petitioners wholly disregard—the mere possibility that the Project might not be constructed (without harms or benefits) does not militate against export authorization.

Petitioners further assert (Brief at 31) that weak global demand could mean that Alaska LNG exports merely “displace [other] U.S. produced LNG that otherwise would have come online.” With respect to that prospect, however, Petitioners err in supposing (*id.*) that no economic benefits would “manifest.” The national economy might not benefit entirely as projected if economic activity simply moves from one U.S. region to another. *See* AR 28_App.F_at_50. But any

potential shifting of natural gas exports to Alaska, where natural gas reserves are presently stranded, would effectively increase domestic supply, which could reduce domestic prices and benefit the national economy. *Id.* More to the point, Petitioners do not challenge DOE's finding that perfect substitution of Alaska LNG exports for exports from the lower-48 states would *decrease* net GHG emissions globally, due to greater efficiencies in North Slope production. AR 604_at_4.19-10; *see also* pp. 14-16, *supra*. Stated differently, it is *undisputed* that if global demand for U.S. LNG exports fails to prompt a net increase in U.S. LNG exports, the climate impacts of shifting U.S. LNG production to Alaska would be net *beneficial*.

This leaves what Petitioners contend (Brief at 26) is the only realistic outcome, *i.e.*, the outcome in which global demand for U.S. LNG is sufficiently strong to absorb Alaska LNG exports in addition to the U.S. LNG exports that otherwise would occur. To model this outcome, Petitioners again suggest use of the 2014 NERA report (*id.*), which projected a net increase in U.S. LNG exports in an amount equaling approximately two thirds of the Project volume. AR 28_App.F_at_25, 42. Petitioners do not contest DOE's determination that economic benefits would be realized in this circumstance. AR 162_at_25; *see also* AR 28_App.F_at_50.

But accepting the NERA report as a measure of the extent to which Alaska LNG exports would add to overall U.S. exports does not eliminate the uncertainties surrounding climate impacts. A net increase in U.S. LNG exports does not necessarily mean an identical increase in global LNG consumption, as U.S. LNG exports could displace other global LNG supply in whole or in part. Nor does an increase in global LNG consumption necessarily mean an increase in global GHG emissions, as LNG consumption could displace coal consumption. The ultimate change in global GHG emissions will depend on the energy sources or conservation measures that Alaska LNG would end up displacing, which (in turn) would be determined by downstream substitution effects in foreign energy markets across the 33-year export period. DOE explained that these effects are dependent on future economic conditions, public policy decisions, technological advances, and geopolitical events in foreign and global markets that cannot be forecast with any substantial certainty. *See* AR 604_at_2-16, 4.19-6. These same factors do not similarly impede forecasts of domestic economic benefits.

Nor do they apply to the identified benefits to U.S. energy security and the energy security of U.S. allies. *See* AR 162_at_25. Providing Alaska LNG for export will expand and diversify global LNG supply, which will provide enhanced energy security for U.S. allies and trading partners in the event of disruptions in other global supply due to geopolitical events or natural disasters. *Id.* These

energy security benefits, like the projected economic benefits, would be realized when the Project is constructed and Alaska LNG is made available to export markets. Unlike climate impacts, these energy-security benefits do not depend on downstream market substitution effects across the 33-year export period. DOE did not act arbitrarily in so observing. *Id.*

B. DOE reasonably weighed non-climate impacts.

Nor did DOE arbitrarily weigh non-climate environmental impacts. DOE considered the impacts of Project facilities by participating in FERC's NEPA review for Project siting and adopting FERC's EIS. AR 107_at_24-27, 32, 46-53. Through the SEIS, DOE considered additional impacts that might occur from North Slope development needed to produce natural gas for export. *See* AR 162_at_32-33. Because all such development generally will occur in areas of existing development or along existing transportation corridors, DOE determined that most environmental effects, with prescribed mitigation, would be less than significant. *See* AR 162_at_14-15; *see also* AR 604_at_4.2-5_to_4.2-6, 4.4-5_to_4.4-6, 6-1_to_6-8 (SEIS); *see also* AR 97_at_87-88 (¶ 251) (FERC order). Petitioners do not challenge DOE's determinations with respect to specific environmental resources or impacts. Instead, Petitioners make two generic arguments that both fall short.

1. *DOE reasonably declined to assess “market need.”*

Petitioners contend (Brief at 33-34) that DOE acted arbitrarily and capriciously in failing to assess “market need” for Alaska LNG. According to Petitioners, this omission caused DOE to disregard the possibility that environmental harms from Project construction might occur without Project-associated benefits, *e.g.*, if Project facilities are never fully completed or operated due to weak global demand. This argument fails at the threshold because Sierra Club did not raise it in its initial rehearing request.

As Petitioners acknowledge (Brief at 38-39), this Court’s review of DOE’s actions under the Natural Gas Act is confined to matters Petitioners raised in a rehearing application before the agency. 15 U.S.C. §§ 717r(a), (b). DOE first authorized natural gas exports from the Alaska LNG Project in August 2020. AR 107_at_36-44. That order followed FERC’s May 2020 order granting Project siting authority. AR 97_at_87-89. Petitioners did not challenge either order on the ground that the agencies had failed to assess market need or financial viability. *See* AR 126; *Alaska LNG I*, 67 F.4th at 1180-81, 1188. Sierra Club’s application for rehearing of the 2020 DOE order was limited to the arguments that DOE violated NEPA by failing to assess: (1) impacts from enhanced North Slope gas production, and (2) lifecycle GHG emissions from Project-produced LNG. AR 109. DOE granted rehearing on these issues alone. AR 126. Only after DOE completed its

rehearing studies and the draft SEIS did Sierra Club (now joined by Center for Biological Diversity) raise the market-need argument. *See* AR 463_at_6.

Contrary to Petitioners' assertion (Brief at 39-44), this argument was not prompted by the draft SEIS or by DOE's order reaffirming export authorization. To be sure, in the order, DOE observed that Project-associated climate impacts are highly uncertain. AR 162_at_25. But that uncertainty relates to the uncertainty in market substitution effects, an issue that goes beyond the immediate question of Project financial viability. Moreover, as explained *supra*, the concern that Project facilities might be constructed but not operated has no relevance to GHG emissions and adverse climate impacts that might result from Project operation.

Petitioners' argument also does not pertain to other analysis in the SEIS. In their comments on the draft SEIS, Petitioners argued that FERC "inappropriate[ly] . . . defer[red]" the issue of market need to DOE, and that DOE's failure to consider market need resulted in an "abdication" of the agencies' collective public-interest approval authority. AR 463_at_6. This is so, Petitioners opined, because the orders enable Project construction and associated environmental impacts without the guarantee of Project benefits. *Id.* This is not a NEPA objection specific to the SEIS's assessment of North Slope impacts, but a challenge to DOE's (and FERC's) public-interest analysis under the Natural Gas Act for the Project as a whole. *Id.* Because Petitioners could have raised this argument in

response to the initial authorization orders, and belatedly raised the argument only after DOE had *completed* its rehearing studies and released the draft SEIS, DOE correctly determined the objection to be “beyond the scope” of the rehearing proceedings. AR 175_at_48-49.

Moreover, as DOE also observed, there is no statute or regulation specifying that DOE must assess the financial viability of an applicant’s project when reviewing an import or export application, and DOE has a longstanding policy and practice, in reviewing applications for authority to import or export natural gas, of presuming that free trade and open markets (all else being equal) are consistent with the public interest. AR 175_at_50. For that reason, DOE generally does not scrutinize market demand, except to ensure sufficient domestic natural gas supply. *Id.* DOE did not act arbitrarily in following that policy here. AR 162_at_25.

As Petitioners note (Brief at 32), this Court recently set aside an order of the Surface Transportation Board authorizing an 80-mile railway in Utah after determining that the Board had failed to adequately consider the project’s financial viability. *Eagle Cnty., Colo. v. Surface Transp. Bd.*, 82 F.4th 1152, 1191-96 (D.C. Cir. 2023). But the Court’s decision was predicated on factors unique to that case, namely: (1) there was a record report specifically “call[ing] into question . . . the financial viability of the [r]ailway,” *id.* at 1192; (2) the Board’s decision not to assess financial viability ran “counter” to the Board’s precedents and the statutorily

enumerated economic policy considerations on which the Board had relied, *id.* at 1193-94; (3) the Board’s environmental impact statement had identified “incredibly significant environmental effects” and was declared deficient in other respects, *id.* at 1181-84, 1194; and (4) the Board had failed to consider all relevant statutorily enumerated environmental policy considerations, *id.* at 1190-91, 1194-95. Moreover, the Board had based its decision—to grant the railway applicant an “exemption” from more onerous public interest review—on a finding that the transportation merits of the railway “outweighed” environmental impacts. *Id.* at 1190.

None of those factors are present here. Petitioners’ observation (Brief at 33-34) that Project facilities might be constructed and not used—triggering some unnecessary environmental impacts like “tree felling and wetland conversion”—is a truism of any project. DOE’s export-authorization order did not approve the siting of any Project facility or any related North Slope gas development. Those are matters belonging to FERC and other agencies. And the EIS and SEIS determined that Project impacts, for the most part, are likely to be less than significant. In this context, DOE did not act arbitrarily in limiting its public-interest review to the benefits and harms that will result if there is market demand for Alaska LNG. AR 162_at_25.

2. *DOE reasonably weighed North Slope impacts.*

Nor did DOE act unreasonably in its weighing of North Slope impacts. Petitioners contend (Brief at 37-38) that DOE arbitrarily assumed that adverse impacts to permafrost, wetlands, and other resources would be mitigated to less-than-significant levels even though specified potential mitigation measures—other than the condition regarding the venting of byproduct CO₂—are not incorporated directly into or binding conditions of DOE's order. *See* AR 162_at_15. But this argument misconstrues DOE's role in overseeing North Slope development and the status of such development. FERC exercised authority over the siting, construction, and operation of the proposed Alaska LNG terminal and the related pipeline and gas treatment facilities. *See Alaska LNG I*, 67 F.4th at 1180; *see also* 15 U.S.C. § 717b(e). DOE had no authority over those issues. Nor does DOE have any authority over the siting, construction, or operation of North Slope facilities needed to produce natural gas for export. As DOE noted, that regulatory responsibility belongs to other federal, state, and local agencies. *See generally* AR 604_at_2-24_to_2-37, 4.2-5_to_4.2-6, 4.4-5_to_4.4-6, 5-1_to_5-7.

DOE appropriately considered North Slope impacts as part of its public-interest calculus for export authorization because Project-induced natural gas development would not occur in the absence of export authorization. But DOE did not act arbitrarily in taking notice of the regulatory authorities exercised by other

agencies and in assuming that such authority will be appropriately exercised.

Moreover, DOE did not determine that potentially significant cumulative impacts on the North Slope *would* be mitigated to less-than-significant levels, only that they “*could* be” and ultimately were the responsibility of other agencies. AR 162_at_14-15 (emphasis added).

Nor are Petitioners correct in arguing (Brief at 38) that DOE failed to take account of North Slope impacts in weighing Project-associated harms and benefits. It is true that DOE did not expressly call out North Slope impacts in one summary statement that “weigh[ed] [the] acknowledged but highly uncertain climate impacts” of the Project “against the economic and international security benefits.” *See* AR 162_at_25. But DOE plainly discussed North Slope impacts elsewhere in the order, AR 162_at_14-15, and specifically considered the entire SEIS and associated NEPA record of decision in its final public-interest determination, AR 162_at_26. DOE’s failure to elaborate on North Slope impacts in its summation was not arbitrary and is not a basis for setting aside the export-authorization order, given the SEIS’s thorough discussion of North Slope impacts, the SEIS’s findings on North Slope impacts, and Petitioners’ failure to identify any flaw in those findings.

II. DOE's NEPA analysis was not arbitrary or capricious.

Petitioners' NEPA claims (Brief at 44-56) mirror their Natural Gas Act claims (Brief at 20-44) but reference two rules specific to NEPA set out in regulations adopted by the Council for Environmental Quality ("CEQ"). These arguments are unpersuasive, largely for reasons already stated.

A. DOE properly assessed the "no action" alternative.

CEQ's regulations specify that an environmental impact statement must evaluate the proposed action in relation to potential alternatives and "the no action alternative." 40 C.F.R. § 1502.14(c); *Alaska LNG I*, 67 F.4th at 1181. This provides a baseline against which the impacts of the proposed action and potential alternatives can be determined. *See Ctr. for Biological Diversity v. Dept. of the Interior*, 623 F.3d 633, 642 (9th Cir. 2010).

Echoing their Natural Gas Act argument (Brief at 21-30), Petitioners argue (Brief at 52) that DOE violated NEPA by failing to "identify" a "realistic no action alternative." In so arguing, Petitioners do not dispute DOE's decision to equate "no action" with a denial of export authorization, and to assume that a denial would mean "that the Alaska LNG Project would not be constructed and the associated environmental impacts . . . would not occur." *See* AR 604_at_2-23. Instead, they challenge DOE's decision to *represent* the no action alternative in two different ways limited to assessing climate impacts.

As explained (pp. 33-38, *supra*), DOE reasonably considered: (1) a non-equivalent energy scenario, in which DOE presumed that all Alaska LNG exports and associated changes in crude oil production would be additive to global LNG consumption, and (2) an equivalent energy scenario, in which DOE presumed that Alaska LNG exports and co-produced crude oil would be consumed in place of LNG and crude oil from other global supply. This approach provided two important perspectives on potential climate impacts. It showed the maximum possible *increase* in global GHG emissions from Alaska LNG exports, and it showed that sourcing LNG from the Alaska LNG Project—as compared to from other global LNG supply (represented by supply from the lower-48 states)—would marginally *decrease* global GHG emissions. AR 604 at 4.19-6 to 4.19-11.

Contrary to Petitioners’ assertion, using multiple baselines to provide different perspectives on the impacts of a proposed action accords with NEPA. FERC similarly considered two “no action” baselines in its EIS, one in which the Alaska LNG Project would not be built and the other in which a different project would be developed to commercialize stranded North Slope natural gas. *See Alaska LNG I*, 67 F.4th at 1182. This Court summarily rejected Petitioners’ claim that FERC thereby “misled the public and disguised the [Project’s] true significance.” *Id.*

Petitioners' contention (Brief at 48-49) that DOE refused, in the SEIS, to consider a "realistic no action alternative" (by which they mean a realistic representation of foreign energy use and GHG emissions in the absence of LNG exports) is just a reprise of their argument that DOE should have forecast market substitution effects as part of its quantitative emissions modeling. As already explained, that argument fails because DOE reasonably determined that quantified substitution effects in future foreign and global energy markets were not reasonably foreseeable. *See* pp. 41-45, *supra*.

B. DOE properly responded to incomplete and unavailable information.

Petitioners also err in arguing (Brief at 52-56) that DOE violated 40 C.F.R. § 1502.21, the CEQ rule on missing information. That rule specifies that "when" an agency "is evaluating reasonably foreseeable significant adverse effects" and faces "incomplete or unavailable information," the environmental impact statement shall: (1) disclose the fact that information is missing, (2) explain the relevance of the missing information, (3) summarize the "existing credible scientific evidence" on the subject effects, and (4) consider the subject effects based on "theoretical approaches or research methods generally accepted in the scientific community." *Id.* § 1502.21(a), (c).

1. *DOE adequately disclosed limitations in forecasting climate impacts.*

Contrary to Petitioners' argument (Brief at 53-54), § 1502.21 was not implicated by DOE's analysis of climate impacts. The rule applies "when" an agency is evaluating "reasonably foreseeable significant adverse effects." 40 C.F.R. § 1502.21. This Court has held that DOE need not quantify indirect effects of export authorizations that are not reasonably foreseeable. *Sierra Club*, 867 F.3d at 198; *see also* 40 C.F.R. § 1508.1(g)(2). Here, DOE reasonably determined that it need not quantify the precise extent to which Project-associated GHG emissions will alter net global GHG emissions considering market substitution effects, because market substitution effects are highly uncertain and an effort to quantify such effects would not meaningfully aid its decision making in this case. AR 175_at_17. Petitioners' disagreement with DOE's determination does not raise concerns under § 1502.21. Indeed, when challenging DOE's climate analysis in the draft SEIS, Petitioners did not invoke § 1502.21. *See* AR 463_at_3-10; *see also* AR 463_at_39 (asserting different § 1502.21 violation).

In any event, the SEIS explained—consistent with the requirements of § 1502.21—that market substitution effects will be driven by a range of factors that are inherently difficult to predict. *See* AR 604_at_2-16, 4.19-6. DOE thoroughly modeled Project-associated GHG emissions across numerous scenarios and disclosed worst-case global climate impacts based on available tools for

calculating the social costs of GHG emissions, *see* pp. 13-18, *supra*, as Petitioners requested, *see* AR 463_at_39-40. DOE merely declined to quantify—based on uncertain forecasts of market substitution effects—the “definitive” change in global GHG emissions that would result from the Alaska LNG Project. AR 162_at_24.

The touchstone for determining when NEPA forecasting is required is the “usefulness” of the information to the decision-making process. *Sierra Club*, 867 F.3d at 198 (citing *Dept. of Transp. v. Public Citizen*, 541 U.S. 752, 767 (2004)). DOE explained that forecasts of market substitution effects were highly uncertain and would not meaningfully add to the quantitative emissions modeling that DOE conducted for the SEIS. This “reasoned explanation” satisfied DOE’s NEPA obligations. *Cf. id.*

2. *DOE adequately disclosed limitations in its analysis of North Slope effects.*

DOE also adequately disclosed limitations in the information it used to evaluate potential North Slope impacts from natural gas production. DOE studied these impacts as reasonably foreseeable indirect effects of export authorization. *See* 40 C.F.R. § 1508.1(g)(2). As the SEIS explained, DOE lacked information on the “exact locations of proposed disturbances” for North Slope gas-production facilities because planning for such development (which is not part of the Alaska LNG Project *per se*) remains to be completed. AR 604_at_2-26, 4.21-1. DOE also

explained that it lacked information on the boundaries of “regulated floodplains” because floodplain mapping has not been done for the North Slope. *Id.*

Contrary to Petitioners’ argument (Brief at 54-55), the SEIS does not fail to “adequately explain” how DOE made up for these data shortcomings. To “account for uncertainties” relating to the location of ground disturbances and floodplain boundaries, the SEIS explained that “DOE developed bounding conditions and assumptions based on the most current and available data and project plans,” which it used both to provide “quantitative information” on the potential range and “upper limits” of potential environmental effects, and “qualitative analysis” of such effects. AR 162_at_4.21-1. Some of that analysis relevant to resources and issues raised by Petitioners is summarized above (pp. 18-23). Petitioners do not meaningfully engage with the SEIS’s analyses as to any specific resources or issues, and thus fail to identify any flaw in DOE’s NEPA compliance.

CONCLUSION

For the foregoing reasons, the petitions for review should be denied.

Respectfully submitted,

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